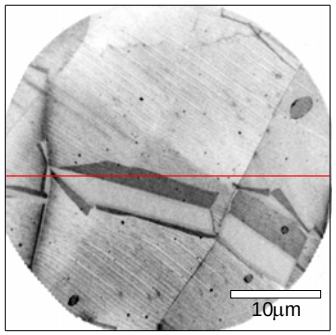
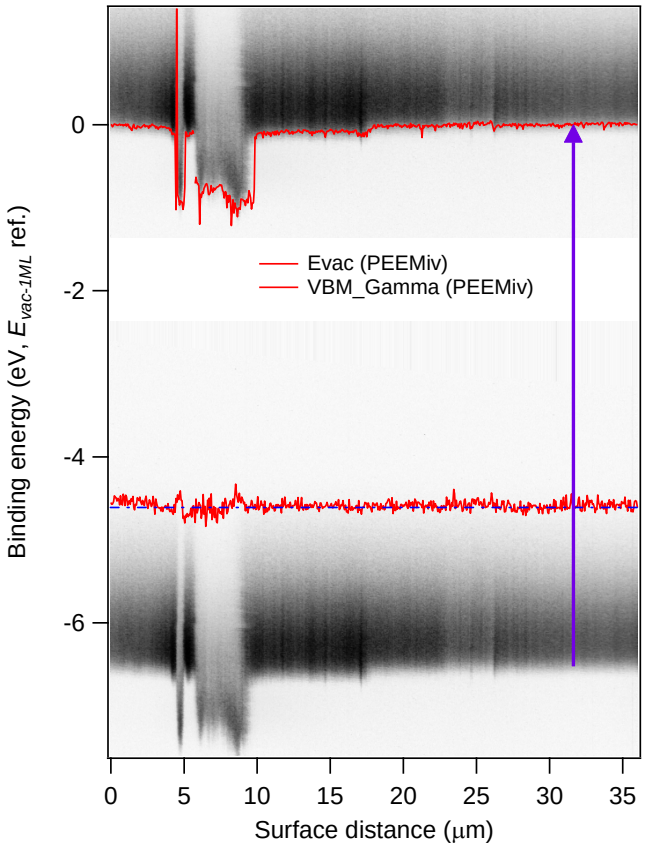
# PEEM-iv vs hu-scan: case study for graphene folds on SiO2

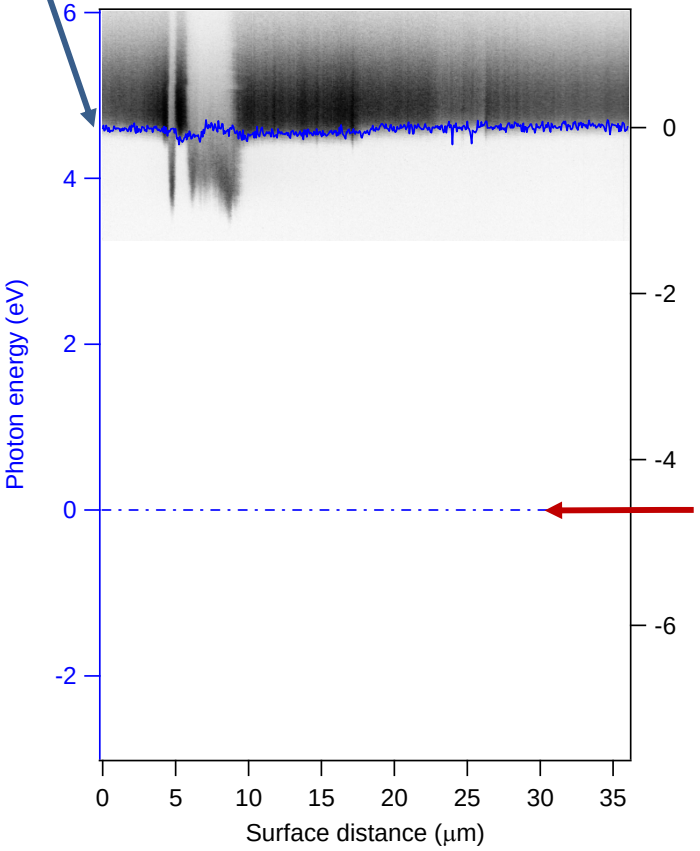
SAND2017-2314R

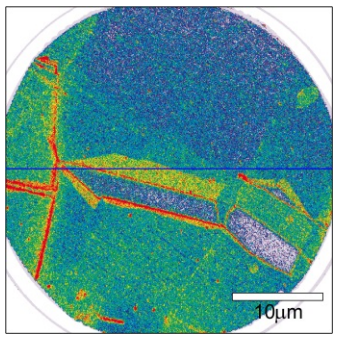
- Determining the work function and the highest occupied state at Γ-point from PEEM-iv
  - Highest occupied state at Γ-point corresponds to the Fermi level for graphene due to its metallic character
  - PEEM-iv measured using λ = 190 nm, 4th analyzer slit (~200 meV resolution)
- Determining ionization energy from the photoemission threshold from photon energy scan (hu scan)
  - Ionization energy corresponds to the work function for metallic material




$\phi$ ~4.60 eV: sample is annealed at 1.5A filament current (i.e. not very clean)

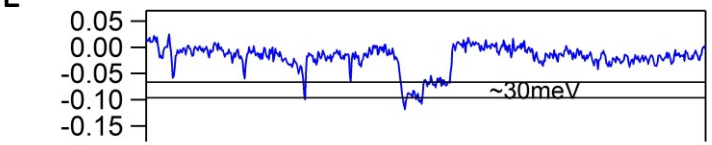


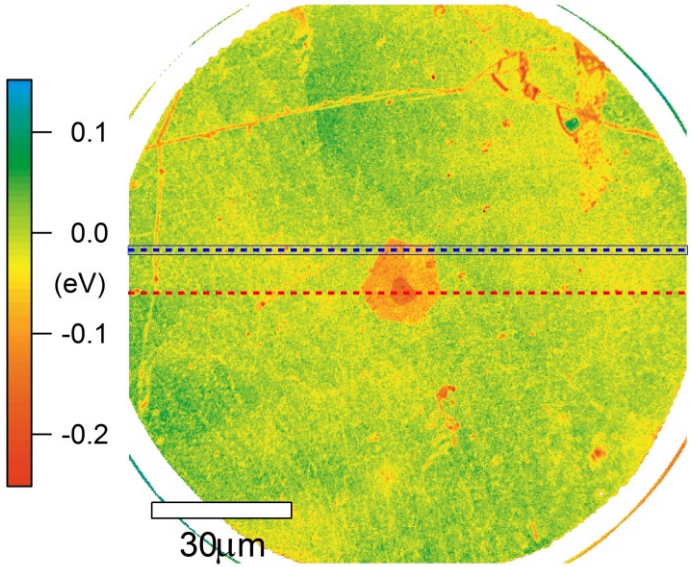



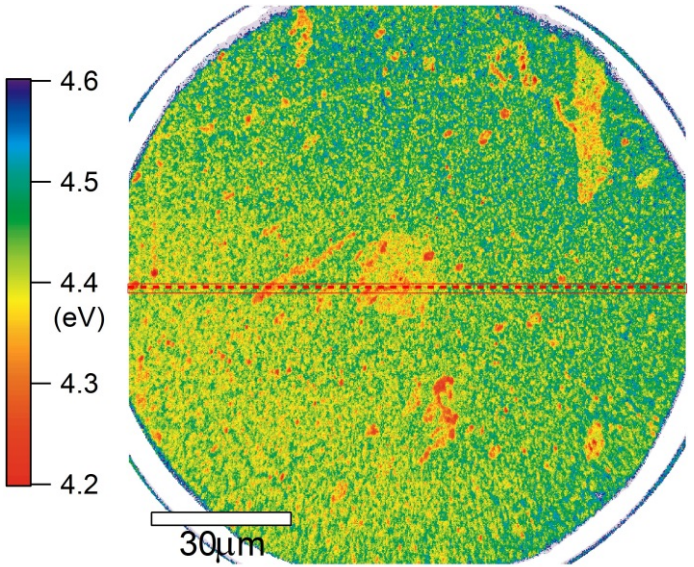

Good matching of the two measurements

# PEEM-iv vs hu-scan: case study for 2ML graphene island on SiO2

- The vacuum level cut-off data shows ~80meV and ~70meV difference between 1GL vs 2GL and 2GL vs multi-layer
  - These variations are in a good agreement with Fig. 4 in the PRB
- The upper part of the 2GL island is the slight variation (~30meV), which I interpret as a twist angle dependence of the work function in 2GL
- The work function of 1GL, ~4.43eV is in good agreement with the calculated work function of 1GL with mid 10^12 cm-2 doping shown in Fig. 5 in the PRB.



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